WHAT IS CLAIMED IS:

1. A dynamic antenna system, comprising:

at least one antenna element; and

a frequency-selective-surface responsive to operating characteristics of the at least one antenna element and/or surrounding environmental conditions.

2. The dynamic antenna system according to Claim 1, wherein the adaptable frequency selective surface further comprises:

a plurality of electrically connectable elements; and

a plurality of switches that, when in an open state, disconnects the elements, or when in a closed state, connects to the elements to permit altering of the radiation characteristics of the frequency selective surface.

3. The dynamic antenna system according to Claim 1, wherein the frequency selective surface reflects, transmits, or absorbs signals defined by operating frequency bands, polarizations, or environmental conditions.

4. The dynamic antenna system according to Claim 3, wherein the reflected, transmitted, or absorbed frequencies includes AMPS, which operates on the 824-849 and 869-894 MHz bands, DAB, which operates on the 1452-1492 MHz band, commercial GPS, which operates around 1574 MHz (L1 Band) and 1227 MHz (L2 Band), PCS, which operates on the 1850-1910 and 1930-1990 MHz bands, SDARS, which operates on the 2.32-2.345 GHz band, and AM/FM, which operates on the 540-1700 kHz and 88.1-107.9 MHz bands.

5. The dynamic antenna system according to Claim 1, wherein the at least one antenna establishes a reference point for orientating the frequency selective surface.

6. The dynamic antenna system according to Claim 5, wherein the frequency selective surface is orientated in a parallel configuration with respect to the at least one antenna.

7. The dynamic antenna system according to Claim 5, wherein the frequency selective surface is orientated in a perpendicular configuration with respect to the at least one antenna.

8. The dynamic antenna system according to Claim 1, wherein the surface is a two-dimensional surface.

9. The dynamic antenna system according to Claim 1, wherein surface is further defined to include a plurality of surfaces responsive to operating a plurality of characteristics of the at least one antenna element and/or surrounding environmental conditions.

10. The dynamic antenna system according to Claim 1 wherein the surface defined a three-dimensional volume.

11. The dynamic antenna system according to Claim 10 wherein the three-dimensional volume partially encapsulates the at least one antenna.

12. The dynamic antenna system according to Claim 10 wherein the three-dimensional volume entirely encapsulates the at least one antenna.

13. The dynamic antenna system according to Claim 2 further comprising:

a transmitter/receiver that receives/transmits an electromagnetic signal;

a switch controller that provides control signals for the switching elements to selectively open or close the switches;

a memory module operatively coupled to the switch controller that stores surface configurations or switch states; and

an algorithm processor that directs operation of the switch controller in a responsive manner via signals received by the at least one antenna.

14. The dynamic antenna system according to Claim 13, wherein the algorithm processor selects a surface configuration appropriate to the operational state of the surface.

15. The dynamic antenna system according to Claim 13, wherein the transmitter/receiver provides a control signal to the algorithm processor or the memory module that indicates the operational mode of the antenna.

16. The dynamic antenna system according to Claim 13, wherein the transmitter/receiver generates a control signal that indicates strength or directional characteristics of the transmitted, received, or absorbed electromagnetic signal as a function of the particular frequency to which the transmitter/receiver is tuned.

17. The dynamic antenna system according to Claim 13, wherein the transmitter/receiver may provide a received signal strength indicator signal to the algorithm processor.

18. The dynamic antenna system according to Claim 13, wherein the algorithm processor responds to the control signal by initiating a search process of the conceptual space of possible surface configurations to select an appropriate surface configuration.

19. The dynamic antenna system according to Claim 13, wherein the algorithm processor starts the search process at a switch configuration that produced acceptable surface characteristics during past usage of the antenna system.

20. The dynamic antenna system according to Claim 13, wherein the algorithm processor addresses the memory module to retrieve a default switch configuration.

21. The dynamic antenna system according to Claim 20, wherein the default switch configuration are a symmetrical configuration of the elements.

22. The dynamic antenna system according to Claim 20, wherein, if the default configuration produces acceptable surface characteristics, the algorithm processor uses the default switch configuration, or, if the default switch configuration no longer produces acceptable surface characteristics, the algorithm processor searches for a new switch configuration using the default switch configuration as a starting point.

23. The dynamic antenna system according to Claim 13, wherein, once the algorithm processor finds the new switch configuration, the algorithm processor updates the memory module to replace the default switch configuration with the new switch configuration.

24. The dynamic antenna system according to Claim 13, wherein the algorithm processor indicates the selected switch configuration to the switch controller, and, in response to the indication of the selected switch configuration, the switch controller addresses the memory module to access information stored in the memory module corresponding to the selected surface configuration.

25. The dynamic antenna system according to Claim 24, wherein the switch controller, upon receiving the information stored in the memory module signals the opening or closing of the switches.

26. The dynamic antenna system according to Claim 13, wherein a sensor antenna connected to the transmitter/receiver provides an indication of system performance.

27. The dynamic antenna system according to Claim 26, wherein the sensor antenna harvests environmental condition data from a global positioning signal to provide position data to inform the antenna system of a poor reception area.

28. The dynamic antenna system according to Claim 2, wherein the elements are dipole elements.

29. The dynamic antenna system according to Claim 28, wherein the dipole elements further comprise:

impedance elements to cause a reflective, transmittive, or absorbing surface for various frequency bands, polarizations, and environment conditions .

30. The dynamic antenna system according to Claim 2, wherein the elements are slot elements.

31. The dynamic antenna system according to Claim 1, wherein the surface is a low impedance surface that lobes signals towards or away from the surface.

32. The dynamic antenna system according to Claim 1, wherein the surface is a high impedance surface that lobes signals toward or away from the surface.

33. The dynamic antenna system according to Claim 1, wherein the surface is an absorbing surface that lobes toward or away from the surface.

34. The dynamic antenna system according to Claim 1, wherein the surface is a matching surface that passes signals through the surface.

35. A method for dynamically optimizing an antenna system, comprising the steps of:

providing at least one antenna element; and

altering a frequency-selective-surface responsive to operating characteristics of the at least one antenna element and/or surrounding environmental conditions.

36. The method according to Claim 35, further comprising the steps of:

disposing within the frequency-selective-surface a plurality of electrically connectable elements; and

disposing within the frequency-selective-surface a plurality of switches that, when in an open state, disconnects the elements, or when in a closed state, connects to the elements to permit altering of the radiation characteristics of the frequency selective surface.

37. The method according to Claim 35, further comprising the step of reflecting, transmitting, or absorbing signals defined by operating frequency bands, polarizations, or environment conditions.

38. The method according to Claim 36 further comprising the steps of:

receiving a radiated electromagnetic signal from a transmitter/receiver;

providing a control signal from a switch controller to control an open or closed position of the switches;

storing surface configurations or switch states in a memory module operatively coupled to the switch controller; and

responsive to signals received by the at least one antenna, directing operation of the switch controller from commands sent from an algorithm processor.

39. The method according to Claim 38, wherein the directing operation step further comprises:

starting a search process via the algorithm processor to provide a switch configuration including acceptable surface electromagnetic characteristics gleaned during past usage of the antenna system.

40. The method according to Claim 39, wherein the directing operation step further comprises:

indicating, via the algorithm processor, the selected switch configuration to the switch controller, and,

responsive to the indicating step, addressing the switch controller from a switch configuration stored in the memory module corresponding to a selected surface configuration.

41. The method according to Claim 35 further comprising the step of:

harvesting environmental condition data from a sensor antenna.

42. The method according to Claim 41, wherein the environmental condition data harvested during the harvesting step is global positioning data that provides position data.